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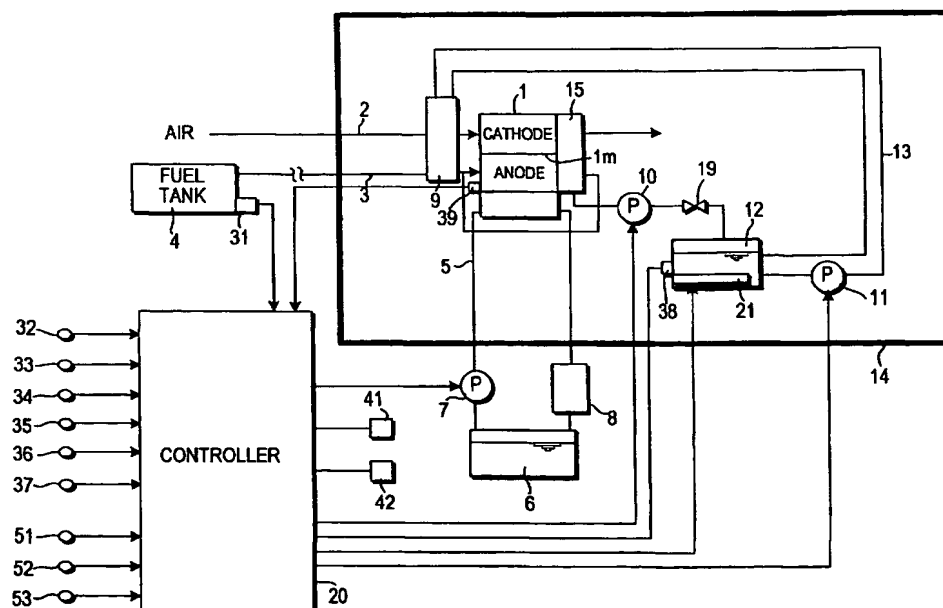
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| (71) Applicant ( <i>for all designated States except US</i> ): NISSAN MOTOR CO., LTD. [JP/JP]; 2, Takara-cho, Kanagawa-ku, Yokohama-shi, Kanagawa 221-0023 (JP). |                               | (88) Date of publication of the international search report: 10 June 2004   |
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*For two-letter codes and other abbreviations, refer to the "Guidance Notes on Codes and Abbreviations" appearing at the beginning of each regular issue of the PCT Gazette.*

**(54) Title:** FREEZE PROTECTION FUEL CELL SYSTEM



**(S7) Abstract:** A system has two modes which protect it from freezing of water while a fuel cell stack (1) has stopped. An effective protection mode from the viewpoint of energy consumption is selected based on the estimated restart time and outside air temperature shift, and used to protect the system. The protection modes are: a first protection mode which prevents freezing by heating the water supplied to the fuel cell (1), and a second protection mode which avoids freezing of water in the fuel cell (1) by discharging the water in the fuel cell (1) to outside the fuel cell (1), and freezing the water outside the fuel cell (1).

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## INTERNATIONAL SEARCH REPORT

International Application No

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## A. CLASSIFICATION OF SUBJECT MATTER

IPC 7 H01M8/04

According to International Patent Classification (IPC) or to both national classification and IPC

## B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)

IPC 7 H01M

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practical, search terms used)

EPO-Internal, WPI Data, PAJ

## C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
A	WO 02/01662 A (EMITEC EMISSIONSTECHNIK ; KONIECZNY JOERG ROMAN (DE); BRUECK ROLF (DE)) 3 January 2002 (2002-01-03) claims 1-7	1-17
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A	PATENT ABSTRACTS OF JAPAN vol. 1995, no. 10, 30 November 1995 (1995-11-30) & JP 7 169476 A (TOSHIBA CORP), 4 July 1995 (1995-07-04) cited in the application abstract	1-17
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Further documents are listed in the continuation of box C.



Patent family members are listed in annex.

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- \*Z\* document member of the same patent family

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## C.(Continuation) DOCUMENTS CONSIDERED TO BE RELEVANT

Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
A	<p>PATENT ABSTRACTS OF JAPAN  vol. 1997, no. 02,  28 February 1997 (1997-02-28)  &amp; JP 8 273689 A (TOYOTA MOTOR CORP; AISIN  SEIKI CO LTD),  18 October 1996 (1996-10-18)  cited in the application  abstract</p> <p>-----</p>	1-17
L	<p>WO 03/073547 A (NISSAN MOTOR ; UTC FUEL  CELLS LLC (US))  4 September 2003 (2003-09-04)  page 6, line 14 - page 9, line 23  page 11, line 33 - page 12, line 7  claims 30,40-45  figures</p> <p>-----</p>	1-17

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Information on patent family members

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